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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,992	01/20/2004	Elliott J. Straus	OMNZ 2 00014	1988

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EXAMINER	
LUU, CUONG V	

ART UNIT	PAPER NUMBER
2128	

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01/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,992	STRAUS, ELLIOTT J.	
	Examiner	Art Unit	
	CUONG V. LUU	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-18 and 20-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-18 and 20-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In view of the appeal brief filed on 8/28/2006, the finality of rejections has been withdrawn and the PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claims 11-18 and 20-28 are pending. Claims 11-18 and 20-28 have been examined. Claims 11-18 and 20-28 have been rejected.

Response to Arguments

1. Applicant's arguments, filed 10/29/2008, with respect to the rejection(s) of claims 11-18, 20-28 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejections are made in

view of Zuyev et al. (Optimization Injection Gate Location and Cycle Time for the In-Mold Coating (IMC) Process, Antec 2001, 195) and Navti et al. (Finite element modelling of surface tension effects using a Lagrangian-Eulerian kinematic description).

Claim Objections

2. Claim 27 is rejected for depending on a canceled claim 10. The Examiner assumes it is dependent on claim 20 for examining this claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuyev et al. (Optimization Injection Gate Location and Cycle Time for the In-Mold Coating (IMC) Process, Antec 2001, 195. Since pages are not numbered, for the purpose of examining, the examiner numbers them from 1 for the first page to 5 for the last page and columns 1 and 2 for each page) in view of Chen et al. (In-Mold Functional Coating of Thermoplastic Substrate: Process Modeling, Antec 2001, 255, Since pages are not numbered, for the purpose of examining, the examiner numbers them from 1 for the first page to 5 for the last page and columns 1 and 2 for each page) and Navti et al. (Finite

element modelling of surface tension effects using a Lagrangian-Eulerian kinematic description, 0045-7825/97, 1997 Elsevier Science S.A.).

3. As per claim 11, As per claim 11, Zuyev teaches a method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article, said method comprising the steps of:

predicting a coating composition fill pattern in said mold (p. 1 col. 2 section Optimal Location of IMC Injection Point, paragraph 1); and

using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article and to reduce the presence of surface defects of a coating formed from said in-mold coating composition (p. 1 col. 2 section Optimal Location of IMC Injection Point, paragraph 1, p. 3 col. 1 paragraphs 3-4); and

placing said injection nozzle in said optimal placement position (p. 1 col. 2 section Optimal Location of IMC Injection Point paragraph 1);

using said method in conjunction with a method to minimize a cure time of the in-mold coating composition (p. 2 col. 2 section Minimization of IMC Cure Time paragraphs 1-2)

However, Zuyev does not teach:

said step of predicting a coating composition fill pattern in said mold is performed by determining the relation between a pressure in said mold and a flow rate of said coating composition by using a finite difference method comprising the steps a), b), c) and d) as recited in the claimed invention.

Chen teaches said step of predicting a coating composition fill pattern in said mold is performed by determining the relation between a pressure in said mold and a flow rate of said coating composition using numerical method (p. 2 col. 2 the last 2 lines of the col. and p. 3 col. 1 lines 1-2 and equation 11);

but does not teach using a finite difference method comprising the steps a), b), c) and d) as recited in the claimed invention.

Navti teaches using a finite difference method in determining relation between a pressure in said mold and a flow rate of said coating composition and solving iteratively (p. 42 paragraphs 2-3 and section 2. Physical Model, and p. 46 section 3.1 Discretisation in time). The method described by Navti in combination with Chen's teachings suggests steps a), b), c), and d) below.

a) defining a fixed spatial step to track a flow front location of the in mold coating composition,

b) advancing the flow front location by one spatial step for a fixed time increment,

c) obtaining the pressure and coating composition thickness distributions for said in mold coating, and

d) repeating said steps until the in mold coating composition filling process is complete.

It would have been obvious to one of ordinary skill in the art to combine the teachings Zuyev, Chen and Navti. Navti's teachings would have provided ease of implementation and accuracy, especially with regards to two dimensional flow problems (p. 59 section 5. Conclusion).

4. As per claim 12, Zuyev teaches instructions for carrying out said method are contained in a computer readable medium (p. 1 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

5. As per claim 13, Zuyev teaches said steps of predicting a fill pattern and determining optimal placement of said nozzle are performed by a computer (p. 1 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

6. As per claim 14, it is a choice for one of ordinary skill in the art to input data necessary for performing said steps into said computer manually. This limitation is, therefore, rejected.

7. As per claim 17, Zuyev teaches said process minimizes the potential for surface defects in an in mold coating formed on a surface of said molded article (p. 1 col. 2 section Optimal Location of IMC Injection Point paragraph 1).

8. As per claim 18, Chen teaches said method is used for an in-mold coating process including at least filling, packing, and solidification phases (p. 2 col. 2 paragraph 2).

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuyev in view of Chen et al. and Navti as applied to claims 13 above, and further in view of Walsh (US Patent 6,099,162).

9. As per claim 15, Zuyev teaches data necessary for performing said steps is provided to said computer by an instrument taking differential scanning calorimetry measurements,

but does not teach the feature of automatically provided to said computer

However, Wash teaches this limitation (col. 1 lines 43-53 and col. 3 lines 27-36. The sensors can be considered differential scanning calorimeters to obtain measurements as recited in col. 1 lines 43-53).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev, Chen, Navti, and Walsh. Wash's teachings would have accurately and continuously monitored the monitoring the curing process (col. 3 lines 24-27).

10. As per claim 16, Zuyev teaches said data is stored in a data collection means associated with said instrument (p. 2 col. 2 paragraph 3 of section Minimization of IMC Cure Time. These paragraphs teach using data measured by DSC to perform calculation. This suggests this limitation) and then relayed to said computer (p. 1 paragraph 1 of section Optimal Location of IMC Injection Point).

Claims 20, 22-24, and 27-28 are rejected under 35 U.S.C. 103(a) as being anticipated by Zuyev et al. in view of Chen et al.

11. As per claim 20, Zuyev teaches a method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article, said method comprising the steps of:

predicting a coating composition fill pattern in said mold over at least a two dimensional surface (p. 1 col. 2 section Optimal Location of IMC Injection Point, paragraph 1); and

using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a

molded article and to reduce the presence of surface defect of a coating formed from said in-mold coating composition (p. 1 col. 2 section Optimal Location of IMC Injection Point, paragraph 1, p. 3 col. 1 paragraphs 3-4); and

placing said injection nozzle in said optimal placement position (p. 1 col. 2 section Optimal Location of IMC Injection Point paragraph 1);

using said method in conjunction with a method to minimize a cure time of the in-mold coating composition (p. 2 col. 2 section Minimization of IMC Cure Time paragraphs 1-2);

Zuyev does not teach wherein said step of predicting a coating fill pattern in said mold is performed by determining the following a) the relationship between a fluidity, S, of an in mold coating composition and a pressure gradient present in said mold

Chen teaches a method to minimize a cure time of the in-mold coating composition; wherein said step of predicting a coating fill pattern in said mold is performed by determining the following a) the relationship between a fluidity, S, of an in mold coating composition and a pressure gradient present in said mold (p. 2 col. 2 the last 2 lines and p. 3 col. 1 lines 1-2 and equation 11. fluidity S is a ratio between flow rate and gradient pressure; equation 11 establish a relationship between flow rate and gradient pressure, so it implicitly determines the relationship between a fluidity, S, of an in mold coating composition and a pressure gradient present in said mold), and b) the relationship between the coating thickness of the in mold coating composition and an injection pressure (p. 3 col. 1 lines 1-2 and equation 11. Equation 11 reads onto this limitation).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev and Chen. Chen's teachings would have optimized the process of in-mold coating (p. 1 col. 1 the abstract and col. 2 last paragraph, and p.2 col. 1 paragraph 1).

12. As per claim 22, Zuyev teaches instruction for carrying out said method are contained in a computer readable medium (p. 1 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

13. As per claim 23, the discussions in claim 22 imply this limitation. It is, therefore, rejected for the same reasons.

14. As per claim 24, it is a choice for one of ordinary skill in the art to input data necessary for performing said steps into said computer manually. This limitation is, therefore, rejected.

15. As per claim 27, Zuyev teaches said process minimizes the potential for surface defects in an in mold coating formed on a surface of said molded article (p. 1 col. 2 section Optimal Location of IMC Injection Point paragraph 1).

16. As per claim 28, Chen teaches said method is used for an in-mold coating process including at least filling, packing, and solidification phases (p. 2 col. 2 paragraph 2).

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuyev in view of Chen as applied to claim 20, and further in view of Ladeinde.

17. As per claim 21, Zuyev and Chen do not teach using a finite element method combined with a control volume approach can be used to numerically determine said relationships.

However, Ladeinde teaches this limitation (p. 515 paragraph 1 and page 515 section Code validation and application 1st paragraph of the section last 6 lines of the paragraph).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev, Chen, and Ladeinde. Ladeinde's teachings would have controlled non-linear instability (p. 515 paragraph 1).

Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuyev in view of Chen as applied to claim 23 above, and further in view of Walsh (US Patent 6,099,162).

18. As per claim 25, Zuyev teaches data necessary for performing said steps is provided to said computer by an instrument taking differential scanning calorimetry measurements,

but does not teach the feature of automatically provided to said computer.

However, Wash teaches this limitation (col. 1 lines 43-53 and col. 3 lines 27-36. The sensors can be considered differential scanning calorimeters to obtain measurements as recited in col. 1 lines 43-53).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev, Chen, and Walsh. Wash's teachings would have accurately and continuously monitored the monitoring the curing process (col. 3 lines 24-27).

19. As per claim 26, Zuyev teaches said data is stored in a data collection means associated with said instrument (p. 2 col. 2 paragraph 3 of section Minimization of IMC Cure Time. These paragraphs teach using data measured by DSC to perform calculation. This suggests this limitation) and using computer with data input to perform analysis (p. 1 paragraph 1 of section Optimal Location of IMC Injection Point).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG V. LUU whose telephone number is (571)272-8572. The examiner can normally be reached on Monday-Friday 8:30-5:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-22792279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128

/Cuong V Luu/

Examiner, Art Unit 2128